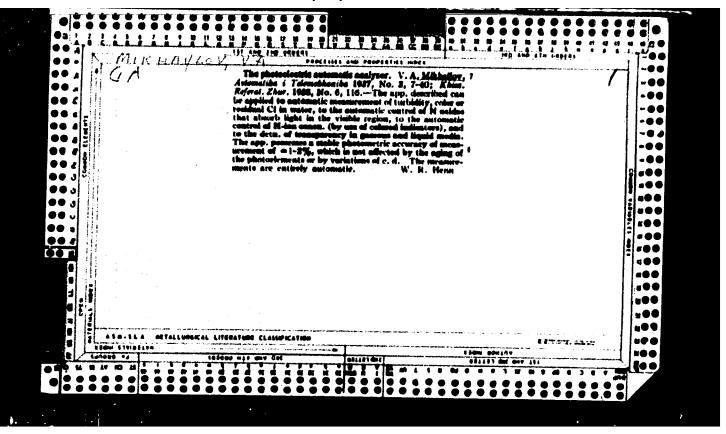VAYMAN, S.Z., gornyy inzh.; MIKHAYLOV, V.A., kand. tekhn. nauk; CHERKONOS, A.I., gornyy inzh.

New equipment for jet piercing machinery. Gor. zhur. no.6:57-58 Je '64.                                                          (MIRA 17:11)

1. Yuzhnyy gorno-obogatitel'nyy kombinat, Krivoy Rog (for Vayman).
2. Krivorozhskiy filial Instituta gornogo dela im. Fedorova (for Cherkonos).

MIKHAYLOV, V.A.

PROCESSING AND PROPERTIES INDEX

The photoelectric automatic analyzer. V. A. Mikhailov, 1
Avtomatika i Telemekhanika 1957, No. 2, 7-40; Khim.
Referat. Zhur. 1958, No. 6, 116.—The app. described can
be applied to automatic measurement of turbidity, color or
residual Cl in water, to the automatic control of N oxides
that absorb light in the visible region, to the automatic
control of H-ion concn. (by use of colored indicators), and
to the detn. of transparency in gaseous and liquid media.
The app. possesses a stable photometric accuracy of meas-
urement of ±1-2%, which is not affected by the aging of
the photoelements or by variations of c. d.  The measure-
ments are entirely automatic.          W. R. Henn

A10-1LA    METALLURGICAL LITERATURE CLASSIFICATION

MIKHAILOV, V.

Printsipy raboty i ustroistva korotkovolnovykh liubitel'skikh peredatchikov.
/Working principles and equipment of short wave amateur transmitters_/.
(Za oboronu, 1946, no. 7- , p. 12).

DLC: TK504.Z3

MIKHAILOV, V.

Radio training for tankmen.   No 1.

Tankist,  No 12, 1948.

MIKHAYLO', V.

Firing from tanks and self-propelled equipment with the aid of barrel-
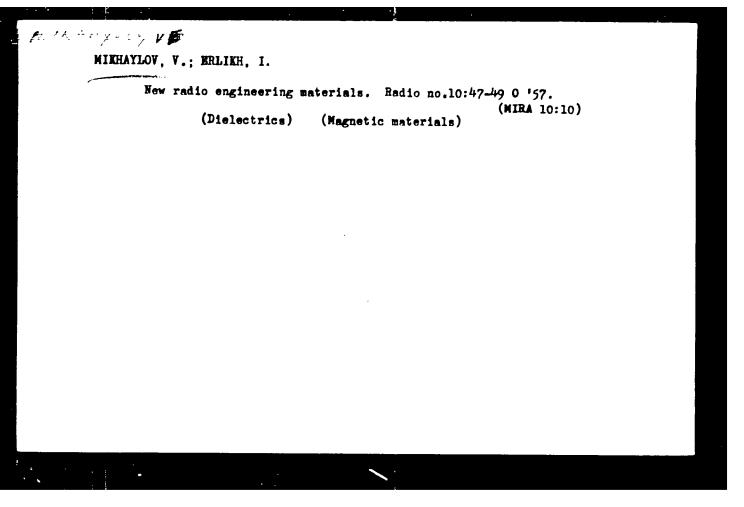lining tubes. No 2.

Tankist, No 12, 1948.

MIKHAYOV,   V.

The orgainzation and conduct of radio classes.   No 9.

Tankist,  No 12, 1948.

MIKHAYLOV, V.

"Ya. Z. Tsypkin, Soviet Specialist on Automatic Regulation,"  Radio, No.6, pp.16-17, 1950

Translation   W-15764, 13 Dec 50

MIKHAYLOV, V.; ERLIKH, I.

New radio engineering materials. Radio no.10:47-49 O '57.

(MIRA 10:10)

(Dielectrics)    (Magnetic materials)

AUTHORS:        Mikhaylov, V., Mikhaylov, Yu.                    1C7--58-6-33/58

TITLE:          The Laboratory of a Rural Radio Amateur (Laboratoriya sel'
                skogo radiolyubitelya)

PERIODICAL:     Radio, 1958, Nr 6, pp 32-36 (USSR)

ABSTRACT:       The article contains descriptions and brief instructions for
                assembly of various measuring instruments which radio amateurs
                may build themselves, since battery-powered instruments are not
                always available.  The instruments are of simple design and may
                find their application not only in rural areas, but whereever
                a normal a.c. power supply is available.  The assembly of these
                instruments requires only medium qualifications.  The article
                contains descriptions of a simple ampere-ohm-volt meter, a tube
                ampere-ohm-volt meter, a signal generator, an ultrashort-wave
                generator, and LF generator.  These devices were developed by
                order of the periodical "Radio".  There are 3 tables and 7 dia-
                grams.

Card 1/1     1.  Radio-Equipment   2.  Signal generators-Applications

9(2)

06268
SOV/107-59-6-52/50

AUTHOR:     Mikhaylov, V. (Moscow)

TITLE:      The Selection of Grid Bias in LF Amplifiers

PERIODICAL: Radio, 1959, Nr 6, p 29 (USSR)

ABSTRACT:   The author suggests a method of selecting the grid bias
            voltage in LF amplifiers as shown in Figure 1. A milli-
            ammeter is connected to the anode circuit of the tube
            and a signal is fed to the grid. With a correct selec-
            tion of the grid bias, the direct component of the anode
            current will not change and the milliammeter will not
            show a different reading. If the reading increases,
            the bias voltage is too high, if it decreases, it is too
            low. A dc voltmeter may be used instead of the milli-
            ammeter, which is connected to the cathode circuit as
            shown by the dotted line in Figure 1. There is 1 cir-
            cuit diagram.

Card 1/1

8(2)

05393
SOV/107-59-8-13/49

AUTHOR:     Mikhaylov, V., Director, Suprunenko, B., Yankevich, V.

TITLE:      A Radio-Controlled Tractor

PERIODICAL: Radio, 1959, Nr 8, pp 17 - 18 (USSR)

ABSTRACT:   Remote controls for a DT-54, tractor to be used for
            ploughing, were developed at the plant "Kraspromav-
            tomatika". An R-106 transmitter working on 46.1 -
            48.65 Mc is equipped with a simple audio frequency
            oscillator producing six frequencies in the range
            from 200-325 cycles. The transmitter has a range of
            3 km and is powered by 2NKN-24 batteries. The an-
            tenna is 1.5 m long. A RUM-1 receiver and nine re-
            lays are installed on the tractor. The receiver re-
            produces the six different audio frequencies which
            cause oscillations of six resonance relay reeds. The
            vibrations of the reeds close the contacts of pola-
Card 1/3     rized relays, which in turn actuate the RKS-3 power

05393
SOV/107-59-8-13/49

A Radio-Controlled Tractor

relays. The power relays close the circuits of
electromagnets operating the valves of the hydrau-
lic system, which actuates the controls of the tractor.
Six commands are possible, according to which the
tractor will start or stop, turn right or left, raise
or lower the plough. Six differently-colored lamps
are mounted on the roof of the tractor, indicating the
proper reception of the signal and the functioning
of the controls.  The receiver is mounted on rubber
cushions.  The polarized relays are suspended by
springs to a common panel.  The receiver may be fed
from dry cells or from the battery installed on the
tractor, using a transistorized converter.  The
transmitter of the RUM-1 remote control equipment,
widely used for aircraft and ship models, proved in-
adequate, because of the low stability of the carrier
Card 2/3     and modulation frequency.  Additional equipment is

05393
SOV/107-59-8-13/49

A Radio-Controlled Tractor

       now being designed which will enable a two-speed
operation of the tractor.  Safety devices must be
developed to stop the tractor in case the oil pressure
drops or the cooling water temperature exceeds a cer-
tain limit.  In the future it will be possible to
supply the receiver from the ac generator of the
tractor.  There are 2 photographs.

ASSOCIATION:"Kraspromavtomatika"

Card 3/3

MIKHAYLOV, V.A., inzh.; SUPRUNENKO, B.M., inzh.; YANKEVICH, V.V., inzh.

Radio-controlled tractors. Mekh.i elek.sots.sel'khoz. 17
no.5:51-53 '59.                                      (MIRA 12:12)

1. "Kraspromavtomatika" Krasnoyarskogo sovnarkhoza.
          (Tractors--Radio control)

MIKHAYLOV, V. A.    Novosibirsk

"Die Hochreinigung von Methyltrichlorsilan."

Paper submitted for 2nd Intl Symp on Hyperpure Materials in Science and Technology, Dresden, GDR, 28 Sep-2 Oct 65.

Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR, Novosibirsk.

SOKOLIK, A.S., doktor; professor, redaktor; MIKHAYLOV, X. redaktor;
    DROZOV, A., tekhnicheskiy redaktor

[Physics and chemistry of jet propulsion] Fisika i khimiia reaktivnogo
dvizheniia; sbornik. Moskva, Gos. izd-vo inostrannoi lit-ry Pt. 1.
[Translation of articles from the English, French, German] Perevod
statei s angliiskogo, frantsuzskogo, nemetskogo. 1948. 235 p.
        (Jet propulsion)                            (MLRA 8:2)

MIKHAYLOV, V., (Engr-Lt Col, Docent, Candidate of Physicomathematical Sciences)

Mikhaylov, V., (Engr-Lt Col, Docent, Candidate of Physicomathematical Sciences) - Author of article, "Atomic Energy (The Structure and Properties of the Nucleus)," on atomic weights, structure of atoms, and the energy released by splitting a helium atom.  The article mentions Mendeleyev's periodic law of chemical elements, claims for Soviet scientist D. D. Ivanenko the idea that the atom consists of a proton and neutron, and states that the first model showing the atom in the form of a "drop" was worked out in the USSR -- the model later became the basis for the theory of splitting the uranium nucleus.  The Soviet Union's stand on the suppression of atomic weapons and for the application of nuclear energy to peaceful goals is reaffirmed in the article.  /See Report U-6005 for full translation of the article./ (Krasnaya Zvezda, 14 Jan 54)
               D - 141 P 87, 17 Dec 54

SO:  SUM 160, 12 July 1954

MIKHAYLOV, V., (Eng-Lt Col, Docent, Candidate of Physicomathematical Sciences)

MIKHAYLOV, V., (Eng-Lt Col, Docent, Candidate of Physicomathematical Sciences) - Author of article, "Atomic Energy," subtitled, "The Radioactive Decomposition of the Nucleus." The article traces the discovery and further study of radioactive rays, speaks of the 700 isotopes now known, and tells of the decomposition of radioactive materials, alpha, beta, and gamma rays, and the amount of material needed to shield a person from them. (Krasnaya Zvezda, 26 Feb 54).

SO:  SUM 163, 19 July 1954.

MIKHAYLOV, V., (Engr-Lt Col, Docent, Candidate of Physicomathematical Sciences)

Mkrtychev, M., (Engr-Maj, Docent, Candidate of Technical Sciences) - Coauthor with
Engr-Lt Col V. MIKHAYLOV (Docent, Candidate of Physicomathematical Sciences) of
article, "Atomic Energy:  In the Service of the National Economy," in which they
state that while the Soviet Union is proceeding with the peaceful utilization of
atomic energy, the imperialistic states see it only as a mass-destruction weapon.
They explain how atomic piles can be used in the peace-time economy and how the
piles are kept operating, and discuss the substances used as atomic fuels and the
power contained in other substances.  They discuss the advantages of atomic energy
power stations over conventional ones, and the use of atomic energy in engines for
submarines, planes, and rockets.  (Krasnaya Zvezda, Moscow, 7 Apr 54).


SO:  SUM 182, 13 August 1954

MIKHAYLOV, V., (Engr-Lt Col,) Docent, Candidate of Physicomathematical Sciences

Author of article, "Problems in the Utilization of Atomic Energy," explaining the control of nuclear reaction by means of cadmium rods inserted into the atomic pile. (Translated in full in Joint Press Reading Service, No 246 , 3 September 1954.) (Krasnaya Zvezda, Moscow, 31 Aug 54)

SO: SUM 265, 10 Nov 1954

AID - P-182

| | | |
|---|---|---|
| Subject | : | USSR/Nuclear Physics |
| Card | : | 1/1 |
| Author | : | Mikhaylov, V., Lt. Col., Eng., Dotsent, Kandidat of Physical and Mathematical Science |
| Title | : | The Structure of an Atom |
| Periodical | : | Air Force Herald, 1, 93 - 96, Ja 1954 |
| Abstract | : | This is an answer to a reader's question giving a basic concept of the atom structure. |
| Institution | : | None |
| Submitted | : | No date |

MIHAYLOV, V. (Lt. Col.)

AID - P-36

Subject       :  USSR/Aeronautics

Card          :  1/1

Author        :  Mikhaylov, V., Lt. Col., Engineer, Dotsent, Kandidat
                 of Physical and Mathematical Sciences

Title         :  Answers to Reader's Questions

Periodical    :  Vest. vozd. flota,  2,  87 - 93,  February 1954

Abstract      :  This article is the author's answer to the question:
                 What energy is stored in the nucleus of an atom?

Institution   :  None

Submitted     :  No date

MIKHAYLOV, V.

AID - P-133

Subject     :  USSR/Electricity

Card        :  1/1

Author      :  Mikhaylov, V., Lt. Col., Eng., Dotsent, Kand. of
               Physical and Mathematical Science

Title       :  Natural and Artificial Radio Activity

Periodical  :  Air Force Herald,  4,  80 - 90,  Ap 1954

Abstract    :  This is an answer to a reader's question.  The author
               subdivides his answer into the 4 following parts:
               1.  Introduction,  2.  Basic laws of radioactive disin-
               tegration,  3.  Properties of radioactive radiations,
               4.  Methods of radioactive detections.  Diagrams,
               tables, graphs.

Institution :  None

Submitted   :  No date

MIKHAYLOV, V.

AID - P-257

Subject     :  USSR/Nuclear Physics

Card        :  1/1

Author      :  Mikhaylov, V., Lt. Col. Engineer, Dotsent, Kand of
               Phys. and Math. Sci.

Title       :  Nuclear Reactions

Periodical  :  Vest. vozd. flota,  6,  89-93, Je 1954

Abstract    :  This is an answer to a reader's question  about nuclear
               reaction. The author explains the principles of this
               reaction, gives the definition of nuclear reaction, and
               explains its mechanics. He gives also the definition of
               various coefficients.  Diagrams.

Institution :  None

Submitted   :  No date

MIKHAYLOV, Viktor Aleksandrovich, kandidat fiziko-matematicheskikh nauk;
MARTYCHEV, Mikhail Grigor'yevich, kandidat tekhnicheskikh nauk;
KIPNIS, S.Ye., redaktor;  ISLENT'YEVA, P.G., tekhnicheskiy redaktor.

[Atomic energy and its prospective use] Atomnaia energiia i perspekti-
vy ee ispol'zovaniia.  Moskva, Izd-vo "Znania," 1955.  29 p. (Vse-
soiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh
znanii, Ser. 4, no.4.)                                      (MIRA 8:4)
         (Atomic power)

Mikhal... Viktor A ...
atomnoi ...
Energy) Mos...  Atomic

KITAYGORODSKIY, A.I., professor;  KADER, Ya.M., redaktor;  MIKHAYLOV, V.A.,
     kandidat fiziko-matematicheskikh nauk, inzhener-podpolkovnik;
     SOROKIN, V.V., tekhnicheskiy redaktor.

     [Structure of matter and its energy] Stroenie veshchestva i ego
     energiia.  Moskva, Voen. izd-vo Ministerstva oborony SSSR, 1955.
     125 p.                                              (MIRA 8:4)
          (Matter)  (Atomic energy)

MIKHAYLOV,V.


"Methods for Controlled Nuclear Reactions," a chapter from the book
Problems in the Utilization of Atomic Energy, the second revised edition of
a collection of artides, published in 1956, Moscow, USSR.  *October*

*MIKHAYLOV, V. H.*

Mikhaylov, Viktor Aleksandrovich, Candidate of Physical and Mathematical
Sciences, Docent, Engineer-Colonel

Fizicheskiye osnovy polucheniya atomnoy energii  (Physical Principles of Atomic
Energy Production)  2d ed., rev. and enl.  Moscow, Voyen. Izd-vo M-va obor.
SSSR,1958.  174 p.  (Series:  Nauchno-populyarnaya biblioteka)  No. of copies
printed not given.

Ed.: Kader, Ya. M.; Consultants of Publishing House: Mkrtychev', M.G. and
Naumenko, I.A., Candidates of Technical Sciences; Tech. Ed.: Mednikova, A.N.

PURPOSE:  This book is intended for the non-specialist reader interested in the
basic principles behind the production of nuclear energy.

COVERAGE:  This book is a presentation of the basic principles behind the product-
ion of nuclear energy.  In relatively non-technical language the author
describes the structure of the atom and the atomic nucleus, radioactivity,
the production of nuclear energy, nuclear reaction (including thermonuclear re-
action), the mechanism of nuclear weapons and the nuclear reactor.  The con-
cluding chapter includes various uses for nuclear energy.  There is the usual
propaganda to the effect that the Soviet Union is developing nuclear power for
peaceful purposes while, the United States is putting all its energies into de-

Physical Principles of Atomic Energy (Cont.)                    686

TABLE OF CONTENTS:

Card 2/4

Physical Principles of Atomic Energy (Cont.)

686

Card 3/ 4

Physical Principles of Atomic Energy (Cont.)                    686

AVAILABLE:  Library of Congress

Card 4/4                                          BK/fal
                                                 10-27-58

*MIKHAYLOV, V. A.*

SHEVCHENKO, V. B., MIKHAYLOV, V. A. and KASHCHEYEV, N. F.

"Complex Utilization of Uranium Ores."

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic
Energy,  Geneva, 1 - 13 Sep 58.

20678

S/120/61/000/001/010/062
E032/E114

*26. 2322*

AUTHORS:     Mikhaylov, V.A., Roynishvili, V.N., and
Chikovani, G.Ye.

TITLE:       Controlled Spark Chamber - A New Instrument for the
Observation of Charged Particle Tracks

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.1, pp.39-42

TEXT:        The spark chamber takes the form of a number of
discharge gaps between conducting plates located in a neon
atmosphere. If immediately after the passage of the particle a
high-voltage pulse having a length of about $10^{-7}$ sec is applied to
the plates then a localized streamer discharge takes place
roughly along the path of the particle. The width of the streamer
is 2 to 3 mm and the intensity is sufficient for it to be
photographed. Three such chambers have been built and tested.
The spark gaps were formed by sets of parallel plates alternately
connected to each other. In two of the chambers the assembly was
mounted in a glass cylinder with metal plates at each end. In
the third chamber the system was mounted in a perspex container.
The plates were made of brass (1 to 2 mm thick) and had an area of

Card 1/4

20678

S/120/61/000/001/010/062
E032/E114

Controlled Spark Chamber - A New Instrument for the Observation
of Charged Particle Tracks

$11 \times 14$ cm$^2$.   The spark gap was 8, 9 and 10 mm respectively.
The working gas was neon ("high purity") at a pressure of 1.1 atm.
The characteristics of the chamber were investigated using cosmic
$\mu$-mesons which passed through 3 rows of Geiger counters (A, Б
and B, Fig.1) and the spark chamber.  The arrangement is shown
schematically in Fig.1.   The outputs of the three Geiger counters
were fed into a coincidence circuit which then triggered the
hydrogen thyratron ТГИ 1-325/16 (TGI1-325/16) which in turn applies
the high-voltage pulse to the plates of the spark chamber.   The
device is not very dependent on the delay between the coincidence
pulse and the high-voltage pulse (in the range 0-12 µsec) provided
rubber seals and other contaminating materials are not present in
the apparatus.   The chamber has a plateau in the range 6-11 kV/cm.
The position of the particle trajectory can be determined to
within a few tenths of a mm, while the error in the determination
of the direction of motion of a particle as determined by two
spark chambers at a distance of 50 cm apart was found to be
Card 2/4

20678

S/120/61/000/001/010/062
E032/E114

Controlled Spark Chamber - A New Instrument for the Observation
of Charged Particle Tracks

$5 \times 10^{-4}$ radians.    Acknowledgements are expressed to
T.S. Grigalashvili for assistance in the construction of the
apparatus and to D.V. Gersamia for taking part in the
interpretation of the results.
There are 6 figures and 6 references:  1 Soviet and 5 non-Soviet.

ASSOCIATION:   Institut fiziki AN GruzSSR
               (Physics Institute, AS Georgian SSR)

SUBMITTED:     February 25, 1960

Card 3/4

MIKHAYLOV, V. M

3. Ye.;   MIKAYLOV, V. A.;   ROINISHVILI, V. N.;

..... Spark Chamber

.... submitted for the 8th Intl. Conf. on Cosmic Rays (IUPAP) Jaipur, India,
-... Dec 1963

MIKHAYLOV, V.A.; ROYNISHVILI, V.N.; CHIKOVANI, G.Ye.

Spark chambers.  Zhur. eksp. i teor. fiz. 45 no.3:818-819 S '63.
(MIRA 16:10)

1. Institut fiziki AN Gruzinskoy SSR.
(Cloud chamber)

ACCESSION NR: AP4018351                          s/0251/64/033/001/0049/0055

AUTHORS: Chikovani, G. Ye.; Roynishvili, V. N.; Mikhaylov, V. A.

TITLE: Investigations of track spark chamber working mechanism (Presented by E. L. Andronikashvili, Academician, 14 December 1963)

SOURCE: AN GruzSSR. Soobshcheniya, v. 33, no. 1, 1964, 49-55

TOPIC TAGS: spark chamber, particle trajectory, Wilson chamber, pulse generator, luminous column, mesh electrode

ABSTRACT: An experimental "track" spark chamber which produces the track of a particle analogous to those observed in a Wilson chamber has been described. The chamber is a rectangular cell 100 x 60 x 20 $cm^3$, filled with high purity neon gas at one atmosphere pressure. The stereophotography of particle tracks is obtained through a mesh electrode charged by a 200 kv potential. An electronic scheme reduces the time lag between the penetrating particle and the high voltage pulse generator trigger in the 1-200 $\mu$ sec interval. The investigations included the number of luminous columns, the width of the columns, and the root-mean-square

Card 1/2

ACCESSION NR: AP4018351

deviation of the column from the actual trajectory as a function of time-lag
between particle penetration and pulse trigger. For 200 $\mu$ sec time lag $\mathcal{T}$ the
pulse duration is 5% longer than at lower values of $\mathcal{T}$. The luminous columns
are seen to be distributed very close to the particle tracks and at $\mathcal{T} = 1 \mu$sec
the maximum pulse measurement gives a value of 300 Bev/sec. Orig. art. has: 6
figures and 1 formula.

ASSOCIATION: Akademiya nauk Gruzinskoy SSR, Institut fiziki, Tiflis (Academy of
Science, Georgian SSR, Institute of Physics).

SUBMITTED: 11Dec63                DATE ACQ: 19Mar64                ENCL: 00

SUB CODE: GP                      NO REF SOV: 001                  OTHER: 002

Card 2/2

CHIKOVANI, G.Ye.; ROYNISHVILI, V.N.; MIKHAYLOV, V.A.

Measurability of ionization in a spark chamber with isotropic
properties. Socb. AN Gruz. SSR 35 no.3:539-542  S '64.

(MIRA 17:11)

1. Institut fiziki AN GruzSSR, Tbilisi. Predstavleno akademikom
E.L. Andronikashvili.

ACCESSION NR:   AP4031144                    S/0056/64/046/004/1228/1239

AUTHORS:   Chikovani, G. Ye.; Roynishvili, V. N.; Mikhaylov, V. A.

TITLE:   Investigation of the mechanism of operation of track spark chambers

TOPIC TAGS:  particle detector, spark chamber, track spark chamber, . glow center, streamer discharge

ABSTRACT:  The characteristic of a 100 x 60 x 19 cm operating track chamber have been studied, in which a distinctly new mode of spark chamber operation (called the "track mode") has been realized.  A statistical model of the development of the luminous centers is proposed to explain the operation of the track chamber.  Experiments have been performed to ascertain the distribution of the discharges from electrode to electrode, their nature, and their dependence on

Card  1/4

ACCESSION NR:   AP4031144

the pulse duration.  Other characteristics of the track chambers in-
vestigated are the number of luminous centers, the widths of the
centers, and the rms deviation of the centers from the true trajec-
tory as a function of the delay time between the particle passage and
the time of application of the high voltage pulse.  The test results
agree well with the statistical model proposed.  It is emphasized
that, along with the grid time resolution, short recovery time, and
simplicity of ordinary spark chambers the track spark chamber has
isotropic properties which permit the three-dimensional recording of
tracks of particles traveling at all angles, individually or in
large groups.  It is expected that the spark chamber will become a
powerful tool for the study of elementary particle interactions.
"The authors thank Professor E. L. Andronikashvili for stimulation
of the work and discussion of the results, their co-workers at the
Cloud Chamber Photograph Analysis Laboratory of Institut fiziki AN
GruzSSR, to their co-workers of the Programming Group of the Institut
Fiziki for the computer operation, and also V. Ya. Oshmyan for assis-

Card   2/4

ACCESSION NR:   AP4031144

tance in the preparation of the chambers."  Orig. art. has: 8
figures and 16 formulas.
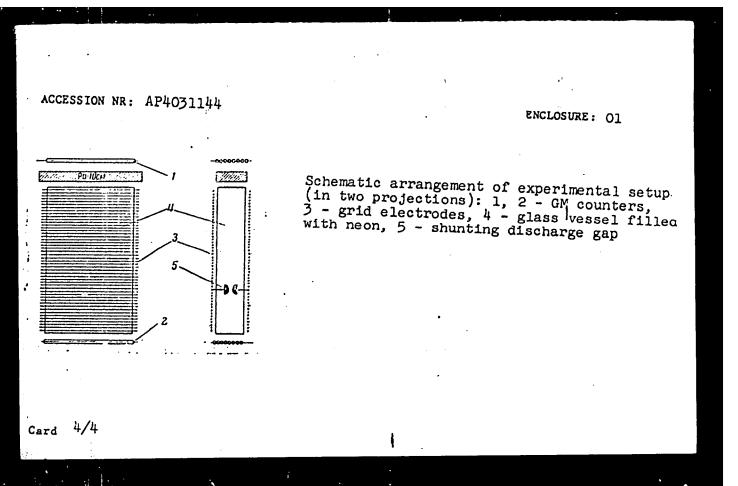
ASSOCIATION:   Institut Fiziki AN GruzSSR (Institute of Physics
AN GruzSSR)

SUBMITTED:  12Nov63          DATE ACQ:  07May64          ENCL:  01

SUB CODE:  NP, GP          NR REF SOV:  006          OTHER:  005

Card   3/4

ACCESSION NR: AP4031144

ENCLOSURE: 01

Schematic arrangement of experimental setup (in two projections): 1, 2 - GM counters, 3 - grid electrodes, 4 - glass vessel filled with neon, 5 - shunting discharge gap

Card 4/4

L 45792-66    EWT(1)

ACC NR: AR6023260                          SOURCE CODE:  UR/0058/66/000/003/A054/A055

AUTHOR: Mikhaylov, V. A.; Roynishvili, V. N.; Chikovani, G. Ye.

TITLE:  Spark chamber with large discharge gap

SOURCE: Ref zh. Fizika, Abs. 3A470

REF. SOURCE:  Sb. Fiz. chastits vysok. energiy. No. 1. Tbilisi, Metsniyeroba, 1965,
85—89

TOPIC TAGS:  spark chamber, spark gap, neon, argon, gas discharge counter, particle
track

ABSTRACT:  The construction is described and the main characteristics are presented
of spark chambers with large discharge gaps (5 and 10 cm).  The working volume (26 —
liters) was filled with commercial argon or neon of VCh (high purity) grade at atmos-
pheric pressure.  The direction of the spark corresponded to the direction of the
particle up to 45° inclination angles.  The chambers had 100% registration efficiency
in the entire track-inclination angle interval.  For the chamber with 5 cm discharge
gap, the error in the determination of the angle was $2.5 \times 10^{-3}$ radian.  V. Tolbuzin.
[Translation of abstract]

SUB CODE:  20

Card  1/1               IG

ACC NR:    AM5004099    (N)        Monograph                      UR/0203

Vasil'yev, Dmitriy Vasil'yevich; Mikhaylov, Vladimir Aleksandrovich; Nomevskiy, Boris Ivanovich

Automation of ship equipment  (Avtomatizatsiya sudovykh ustanovok)  2d ed., rev. and enl.  Leningrad, Izd-vo "Sudostroyeniye", 1965.   607 p.  illus., biblio.  3500 copies printed.  Textbook for institutions of higher technical education

TOPIC TAGS:  shipborne automatic control system, linear control system, nonlinear control system, electric motor

PURPOSE AND COVERAGE:   This book is based on the course "Electrical equipment and automation of ships"  conducted at the Leningrad Electrotechnical Institute im. V. I. Ul'yanova.  This textbook is intended for use in the above-mentioned course in schools of higher technical  education;  it may also be used by engineers designing new automated marine plants and by manufacturing workers.  The book deals with elements and control systems of automated ship installations.  The theoretical fundamentals of automatic control are also considered, along with linearized systems and problems of the theory of nonlinear systems.  Fundamentals of the statistical dynamics method of systems with automatic control are discussed.

TABLE OF CONTENTS  [abridged]:

Foreword — 3

Card 1/4                                UDC:  621.311.2—52:629.12

ACC NR: AM5004099

Card 2/4

ACC NR: AM5004099

Card   3/4

ACC NR: AM5004099

SUB CODE: 09, 13./ SUBM DATE: 25Sep65/    ORIG REF: 057/ OTH REF: 003

MIKHAYLOV, V. A.

CA

The heat balance of the Beskov [superphosphate] chamber. V. F. Postnikov and V. A. Mikhailov, *Trans. Inst. Chem. Tech. Ivanovo* (U. S. S. R.) 1940, No. 3, 90–102.—The calcn. of the heat balance confirmed the contention that in the reaction between apatite and H₂SO₄, $CaSO_4.0.5H_2O$ is formed instead of $CaSO_4.2H_2O$. The Al silicate accompanying the apatite used for the expts. was found to be $Al_2O_3.2SiO_2$, instead of the arbitrarily accepted $Al_2(SiO_3)_3$ as used by other investigators. Increase to 20° of the temp. of $H_2SO_4$ used for the decompn. of apatite does not change materially the temp. régime of the chamber. This fact is of a great practical importance, since the increased temp. of the acid increases the sepn. of the gaseous F compds. The temp. of $H_2SO_4$ entering the system should be 30–35° in order that an acid of the required temp. shall reach the chamber.     W. R. Henn

ASM-SLA   METALLURGICAL LITERATURE CLASSIFICATION

MIKHAYLOV, V. A.

CA

**PHOTOELECTRONIC ANALYZERS FOR PHYSICAL AND CHEMICAL**

properties of water. V. A. Mikhaylov. *Trudy Vsesoyuz. Konferentsii Anal. Khim.* 2, 261-65(1943).—A discussion and description of photoelectronic analyzers of medium accuracy for the control of purified waste waters, lab.-type analyzers, and plant-scale analyzer. W. K. Henn

A58-5L4 METALLURGICAL LITERATURE CLASSIFICATION

MIKHAYLOV, V.A

The computation of cation hydration energy. V. A. Mikhaylov and S. I. Orakin D. I. Mendeleev Chem. Technol. Inst., Moscow. *Zhur. Fiz. Khim.* 29, 2135-44 (1955). —A refinement is made in the Latimer computation method of cation hydration and 37.0542. The original method is based on a thermodynamic cycle that permits a simple phys. interpretation. Some inherent errors present in it are caused by the neglect of some minor factors and the precision of their expression can be increased by the introduction of corrections for the power with dielec. const. of the ionic force field in the expression for free hydration

energy, and of quantum-mech. ex . . . . . . . . . . . the electrons of
the ions when the electrons become detached from the atoms, and
for the interaction of the ions and solvent mols. The free
hydration energies of 31 cations were recalcd. With cations
that have an inert-gas configuration, the introduction of the
dielec. satn. effects and of the work of ion incorporation into
the solution give values that agree with the values ob-
tained experimentally. With other cations, differences exist
between the calcd. and exptl. values caused by neglecting
the quantum-mech. factors.          W. M. Sternberg

MIKHAYLOV, V.A.

Dielectric saturation of polar liquids. Zhur. fiz. khim. 30 no.11:
2602-2606 N '56.                                        (MLRA 10:4)

1. Khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva, Moskva.
                        (Dielectric constants)

SOV/78-3-8-36/48

AUTHORS:     Shevchenko, V. B., Mikhaylov, V. A., Zaval'skiy, Yu. P.

TITLE:       The Extraction of Protactinium by Means of Alkyl Phosphoric
             Acids (Ekstraktsiya protaktiniya alkilfosfornymi kislotami)

ABSTRACT:    The extraction power of some alkyl phosphoric acids with regard
             to protactinium from nitric acid solutions was studied. The
             extraction was carried out at $20^\circ$ centigrade from $2N.HNO_3$ me-
             dium. Dialkyl phosphate was found to be a particular effective
             extraction-agent for protactinium. Dialkyl phosphate proved
             to be a better extraction-agent for protactinium than for
             uranium. When extracting protactinium by means of dialkyl phos-
             phoric acids it was found that the distribution coefficient is
             proportional to the square of the extraction concentration in
             the organic phase. It was further found that the type of the
             solvent does not exercise any essential influence on the ex-
             traction of protactinium. There are 1 figure, 5 tables, and 12
             references, 2 of which are Soviet.

Card 1/2

SOV/78-3-8-36/48

The Extraction of Protactinium by Means of Alkyl Phosphoric Acids

ASSOCIATION:    Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva
                (Chemical-Technological Institute imeni D. I. Mendeleyev)

SUBMITTED:      December 3, 1957

Card 2/2

AUTHORS:      Mikhaylov, V. A., Shevchenko, V. B.,      SOV/78-3-8-37/48
              Kolganov, V. A.

TITLE:        Investigation of the Extraction of Protactinium by Mono-and
              Diisoamyl Phosphoric Acids (Issledovaniye ekstraktsii
              protaktiniya mono- i diizoamilfosfornoy kislotami)

PERIODICAL:   Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1959-
              1964 (USSR)

ABSTRACT:     In the present paper the results of detailed investigations on
              the extraction of protactinium by mono- and diisoamyl phos-
              phoric acid from nitric acid solutions are given. The dependence
              of the extraction of protactinium by mono- and diisoamyl phos-
              phoric acid on the concentration of the extractive and the con-
              centration of $H^+$ and $NO_3^-$ in the aqueous phase were investigated.

              It is shown that in the extraction with dialkyl phosphoric acid
              the distribution coefficient of protactinium is proportional to
              the square of the concentration of the extractive in the organic
              phase. The concentration of nitric acid ions is of no importance
              in the extraction of protactinium. From the experimental re-
Card 1/2      sults may be concluded that in the extraction of protactinium

SOV/78-3-8-37/48

Investigation of the Extraction of Protactinium by Mono- and Diisoamyl Phosphoric Acids

with isoamyl phosphoric acid the extractive is at the same time a complex former in aqueous phase. The probable mechanism of the extraction of protactinium with isoamyl phosphoric acid under the formation of highly hydrolizable complex compounds between protactinium and extractive in the aqueous phase, and the transition from protactinium in organic phase in form of $PaK_5$ were suggested (isoamyl phosphoric acid is called HK) There are 3 figures, 4 tables, and 9 references, 3 of which are Soviet.

ASSOCIATION:    Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva
(Chemical and Technological Institute imeni D. I. Mendeleyev)

SUBMITTED:    December 9, 1957

Card 2/2

AUTHOR:        Mikhaylov, V. A.                          SOV/75-13-4-23/29

TITLE:         On the Reaction of Uranium With Ferron (7-Iodine-8-Hydroxy-
               Quinoline-5-Sulfonic Acid) (O reaktsii urana s ferronom (7-yod-
               8-oksikhinolin-5-sul'fokislotoy))

PERIODICAL:    Zhurnal analiticheskoy khimii, 1958, Vol. 13, Nr 4, pp. 494-
               495 (USSR)

ABSTRACT:      At $p_H$ 5 hexavalent uranium forms an intense brown color with

               Ferron if the solution is buffered with urotropine. The sensi-

               tivity of this reaction is $10 \mu U/ml$ (maximum dilution $1:10^5$). If

               an acetate buffer is used at the same $p_H$ value no reaction oc-

               curs. The maximum intensity of the color occurs at $p_H$ 4.5-5.5

               It was found by means of the method of isomolar series according
               to Ostromyslenskiy-Zhob (at 520 and 360 m$\mu$) that uranium reacts
               with Ferron at the molar ratio of 1:2. With respect to the se-
               lectivity this reaction does not deserve much attention as the
               reagent also reacts with trivalent iron (Refs 2, 4). Highly
               acid and alkaline solutions of Ferron have a maximum light ab-
Card 1/3       sorption at 360 m$\mu$, while at $p_H$ 4-5 the maxima occur at 340 and

SOV/75-13-4-23/29

On the Reaction of Uranium With Ferron (7-Iodine-8-Hydroxy-quinoline-5-Sulfonic Acid)

430 m$\mu$. The compound of uranium with Ferron has its maximum of light absorption at 360 m$\mu$. This curve is similar to that of Ferron in alkaline solution, differs from it, however, by a considerable absorption at from 430 to 600 m$\mu$. The same absorption maximum at 360 m$\mu$ also characterized the compounds of trivalent iron and aluminum with Ferron. The same position of the absorption maxima of the reagent in alkaline solution and its metal compounds in highly acid solution ($p_H$ 5) tends to

show that in agreement with the opinion advanced by Kuznetsov (Ref 5) an inner molecular dissociation occurs. The intensity of the absorption bands is directly proportional to the number of the Ferron radicals in the molecule, which is an interesting fact. The mean coefficient $E_{360}$ for one mole of Ferron amounts

to 2 300. The occurrence of an absorption in the visible range of the spectrum is possibly connected with the chromophoric effect of hexavalent uranium (Refs 6, 7). This assumption is proved by the behaviour of the analogous compounds of Ferron with aluminum and iron. This way it was found by a comparison

Card 2/3            of the absorption curves that in the formation of compounds of

On the Reaction of Uranium With Ferron (7-Iodine-8-Hydroxy-Quinoline-5-Sulfonic Acid)                SOV/75-13-4-23/29

uranium and iron with Ferron two mechanisms of color reactions as mentioned by Kuznetsov (Refs 5, 6) occur at the same time. The character of the change of the curves points to the fact that iron has a stronger chromophoric effect than uranium. There are 2 figures and 7 references, 2 of which are Soviet.

SUBMITTED:    June 12, 1957

1. Uranium—Chemical reactions   2. Ferron—Chemical reactions
3. Light—Absorption   4. Spectrographic analysis

Card 3/3

MIKHAYLOV, V.A.

     Conference held in Ivanovo on the complex formation in solutions.
Zhur.anal.khim. 13 no.4:504 Jl-Ag '58.          (MIRA 11:11)
     (Complex compounds)     (Solution (Chemistry))

AUTHOR:        Mikhaylov, V. A.                         76-32-6-39/46

TITLE:         An Attempt to Evaluate the First Hydrolysis Constant of the
               Pa(V)Ion (Popytka otsenki pervoy konstanty gidroliza dlya
               iona Pa(V))

PERIODICAL:    Zhurnal fizicheskoy khimii, 1958, Vol. 32, Nr 6,
               pp. 1421 - 1422 (USSR)

ABSTRACT:      The first hydrolysis constant of polyvalent cations $K_h$ is
               usually brought into connection with the magnitude of the ion
               potential $z/r_i$. However, in using the crystallochemical ion
               radii $r_i$ no uniform function of $pK_h$ versus ion potential is
               found, which is graphically shown. A.F.Kapustinskiy, S.M.Drakin
               and B.M.Yakushevskiy (Ref 1) showed that the ion potential
               $z/r_{aq}$ represents a simple and sufficiently universal electrostatic
               characteristic feature of the hydrated ions. Proceeding from
               this idea and using the crystallochemical radii of Pa(V)
               according to Zakhariazen as well as the experimental values
Card 1/2       for $pK_h$ a straight line is obtained which is expressed by the

An Attempt to Evaluate the First Hydrolysis Constant ... 76-32-6-39/46
of the Pa(V)Ion

given formula. The calculated value for the first hydrolysis
constant which is given to be

$K_h = 10^{3\pm1}$ and which is relatively high, agrees with the existing
qualitative hydrolysis data by Pa(V). It is added that in case
the crystallochemical radii according to Gol'dshmidt are
employed -which differ a little from those by Zakhariazen -also
a linear function is obatiend. There are 2 figures and 4 refer-
ences, 3 of which are Soviet.

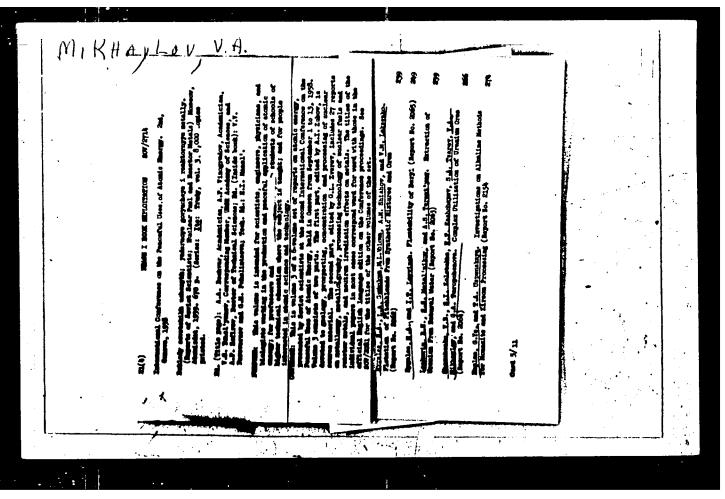ASSOCIATION: Khimiko-tekhnologicheskiy institut im.D.I.Mendeleyeva,Moskva
              (Moscow, Chemical Technological Institute imeni D.I.Mendeleyev)

SUBMITTED:   May 29, 1957

1. Ions--Hydrolysis    2. Ions--Mathematical analysis

Card 2/2

MIKHAYLOV, V.A.

MIKHAYLOV, V.A.

Dissociation in acid of hydrated protactinium complexes. Radiokhimiia
1 no.4:395-399  '59.                              (MIRA 13:1)
          (Protactinium compounds)

5 (4)

AUTHORS:      Mikhaylov, V. A., Kamarzin, A. A.          SOV/79-29-4-76/77

TITLE:        On the Rational Method of Expressing the Composition in the
              Investigation of the Density of Solutions (O ratsional'nom
              sposobe vyrazheniya sostava pri izuchenii plotnosti rastvorov)

PERIODICAL:   Zhurnal obshchey khimii, 1959, Vol 29, Nr 4, pp 1398 - 1399
              (USSR)

ABSTRACT:     If the formation of a system, as e. g. that of an ideal solu-
              tion or of a mechanical mixture is not accompanied by a change
              in volume, it is known that the density is an additive function
              of the composition only if expressed in percents by volume.
              The additivity of the density is proved by the simplest method
              for ideal systems if it is expressed in percents by volume
              (Ref 1). Nevertheless, many authors (Refs 2-14) express in the
              case of the investigation of the density of binary systems, the
              composition in percents by mole, and try to draw conclusions on
              the intensity of the chemical reaction in the system and on the
              change in volume in the case of its formation from the form of
              the obtained curves density - composition. The final conclusion
              drawn by I. M. Bokhovkin (Ref 7) on the intensification of the
Card 1/2      reaction of acetone with the chlorine derivatives of acetic

On the Rational Method of Expressing the Composition     SOV/79-29-4-76/77
in the Investigation of the Density of Solutions

     acid according to the substitution of hydrogen by chlorine in
     the radical of acetic acid may serve as an example of a wrong
     conception. The determination of the density of a mixture of
     solvents of A. Ya. Deych (Ref 15) according to a "common ad-
     ditivity formula" if the composition is expressed in percent-
     ages by weight and the calculated density is then compared
     with the experimental one is wrong as well. Thus, the composi-
     tion has to be expressed in percents by volume in the case of
     the investigation of the density of solutions. Only then the
     form of the isothermal line of density permits right conclu-
     sions on the changes in volume in the case of the formation of
     the system (Refs 16,17). There are 17 Soviet references.

ASSOCIATION: Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii
      nauk SSSR (Institute of Inorganic Chemistry of the Siberian
      Department of the Academy of Sciences USSR)

SUBMITTED: July 19, 1958

Card 2/2

5(4)

AUTHORS:     Drakin, S. I., Mikhaylov, V. A.                SOV/76-33-7-15/40

TITLE:       Calculation of the Entropy of the Hydration of Cations

PERIODICAL:  Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 7, pp 1544-1550
             (USSR)

ABSTRACT:    In a previous paper (Ref 1), a method of calculating the
             hydration energy of cations $\Delta Z_{gas}$ was described on the basis
             of a thermodynamic cycle, and a corresponding equation (1) was
             obtained. The latter permits calculation of the hydration
             entropy of the ions $\Delta S_{gas}$ if the application of this method is
             restricted to a particular case. In the present case, the compo-
             nents of equation (1) were differentiated with respect to
             temperature, and corresponding equations were obtained which
             permit calculation of the hydration entropy (HE) of cations
             that do not possess the electronic configuration of inert gases.
             According to the resultant equations, the (HE) of 34 cations
             was determined and compared with experimental data (Table) which
             were in good agreement. The majority of mon- and diatomic ions
             deviate only by 7 entropy units at most. The above method of
Card 1/2     calculating (HE) permits explanation of the linear dependence of

Calculation of the Entropy of the Hydration of Cations     SOV/76-33-7-15/40

(HE) on $z/r_i$ ($z$ = charge, $r_i$ = ionic radius) observed by (Ref 10), which could not be explained by Born's equation. From the resulting values of hydration energy and entropy the authors calculated the hydration heats of the above cations (Table), which were in good agreement with experimental data. There are 2 figures, 1 table, and 13 references, 7 of which are Soviet.

ASSOCIATION:     Khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva,Moskva (Institute of Chemical Technology imeni D. I. Mendeleyev, Moscow)

SUBMITTED:     December 31, 1957

Card 2/2

KIRGINTSEV, Aleksey Nikolayevich; MIKHAYLOV, V.A., kand. khim. nauk, otv.
red.; CHERNOVA, L.I., red.; LOKSHINA, O.A., tekhn. red.

[Mathematical theory of zone melting processes] Matematicheskaia
teoriia protsessov zonnoi plavki. Otv. red. V.A.Mikhailov. Novo-
sibirsk, Izd-vo Sibirskogo otd-nia AN SSSR, 1960.  69 p.
(MIRA 14:8)

(Zone melting)

BATSANOV, S.S.; MIKHAYLOV, V.A.

System of electronegativities for aqueous solutions. Zhur. strukt.
khim.1 no.4:410-416 N-D '60.                    (MIRA 14:2)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR,
Novosibirsk.
                    (Electronegativity)

MIKHAYLOV, V.A.; DRAKIN, S.I.

Mechanism of the solvation of ions.  Izv.Sib.otd.AN SSSR no.6:44-52 '60.  (MIRA 13:9)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR i Moskovskiy khimiko-tekhnologicheskiy institut im. D.I. Mendeleyeva.
(Solvation)

KUZNETSOV, V.I.; SAVVIN, S.B.; MIKHAYLOV, V.A.

Progress in the analytical chemistry of uranium, thorium, and plutonium. Usp. khim. 29 no.4:525-567 Ap '60.     (MIRA 14:4)

1. Institut geokhimii i analiticheskoy khimii imeni V.I.Vernadskogo AN SSSR.
         (Uranium—Analysis)            (Thorium—Analysis)
                    (Plutonium—Analysis)

*MIKHAYLOV, V. A.*

81976

pa

S/074/60/029/07/04/004
B020/B068

21.3200

AUTHOR:        Mikhaylov, V. A.

TITLE:         New Investigations of the Chemistry of Protactinium

PERIODICAL:    Uspekhi khimii, 1960, Vol. 29, No. 7, pp. 882-898

TEXT:  Chiefly publications which appeared in 1957 and 1958 are treated
in this paper. In the first chapter, a review of publications dealing
with the separation of protactinium from natural raw materials is given.
Fig. 1 shows the $\alpha$-ray spectrum of $Pa^{231}$, and the preliminary concentration
of $Pa^{231}$ is schematically shown in Fig. 2. The following chapters
describe chemical techniques used to prepare $Pa^{231}$, determination methods
for protactinium, and its extraction with organic solvents. Fig. 3 shows
the interrelation between the partition coefficient of protactinium and
gold on extraction from 8 N HCl with different organic solvents.
Moreover, ion exchange, adsorption, and coprecipitation of protactinium,
its state in aqueous solutions as well as protactinium and the

Card 1/2

New Investigations of the Chemistry of 81976         S/074/60/029/07/04/004
Protactinium                                         B020/B068

actinium series are treated. D. I. Mendeleyev, V. B. Shevchenko, I. Ye.
Starik, A. V. Nikolayev, Yu. P. Zaval'skiy, V. A. Kolganov, A. I.
Skul'skiy, Chzhuan Ya-uy, and Ye. S. Makarov are mentioned. There are 3
figures and 97 references: 28 Soviet, 46 US, 7 British, 2 German,
4 French, 1 Australian, 1 Canadian, 2 Swiss, 1 Spanish, 1 Japanese,
3 Dutch, and 1 Swedish.

ASSOCIATION:     In-t neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR
                 (Institute of Inorganic Chemistry of the Siberian
                 Department of the AS USSR)

Card 2/2

MIKHALYLOV, V.A.

More on the question of the additivity of density. Zhur. ob.
khim. 30 no.11:3849-3850 N'60.                    (MIRA 13:11)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya
Akademii nauk SSSR.
(Solution(Chemistry)--Density)

S/075/60/015/005/006/026/XX
B002/B056

AUTHOR:          Mikhaylov, V. A.

TITLE:           Investigation of the Solubility of the Phenyl Arsonates
                 of Zirconium, Thorium, and Uranium

PERIODICAL:      Zhurnal analiticheskoy khimii, 1960, Vol. 15, No. 5,
                 pp. 528 - 533

TEXT:  The solubility of the phenyl arsonates of Zr, Th, U(IV) and
U(VI) was determined by means of the method of tagged atoms at various
concentrations of $HNO_3$ (Figs. 1, 3, and 5). Furthermore, the dependence
of the solubility on phenylarsonic acid concentration was investigated
(Figs. 2 and 4). Herefrom, it may be concluded that the reactions de-
velop according to the following scheme:

For U (VI) : $UO_2^{2+} + H_2A \rightleftharpoons \downarrow UO_2A + 2 H^+$          $H_2A$ ... phenylarsonic

For U (IV) : $U^{4+} + 2 H_2A \rightleftharpoons \downarrow UA_2 + 4 H^+$          acid

For Zr (IV) and Th (IV) : $M^{IV} + 2 H_2A \rightleftharpoons \downarrow MA_2 + 4 H^+$

Card 1/3

Investigation of the Solubility of the    S/075/60/015/005/006/026/XX
Phenyl Arsonates of Zirconium, Thorium,    B002/B056
and Uranium

The minima of the solubility of phenylarsonates are $3 \cdot 10^{-5}$ M for
uranium (VI), $1 \cdot 10^{-5}$ M for uranium (IV), $(0.5 \pm 0.2) \cdot 10^{-5}$ M for zir-
conium, $1 \cdot 10^{-5}$ M for thorium. Furthermore, the logarithm of the reaction
constant is given: $2.2 \pm 0.2$ for U(VI), $6.5 \pm 0.3$ for U(IV), $11.5 \pm 0.3$
for zirconium, $3.8 \pm 0.3$ for thorium. The following conditions are given
for the completest precipitation possible: For hexavalent uranium,
acidity must not exceed 0.01 M in the case of a 0.08 M solution of
phenylarsonic acid; for quadrivalent uranium, the concentration of the
reagent should not be below 0.04 M, and the acidity must not be higher
than 0.3 M. For thorium, a maximum of 0.03 M acidity is given in the
case of 0.08 M phenylarsonic acid; for zirconium, at a reagent concen-
tration of 0.005 M, a minimum acidity of 2 M, the concentration of the
phenylarsonic acid, however, is more than 0.01 M, the acidity may amount
to 4 M and more; on the other hand, acidity must not exceed 2 M in the
case of precipitation in a sulfuric acid medium also if the concentra-
tion of the reagent is 0.02 M. There are 5 figures, 2 tables, and

Card 2/3

Investigation of the Solubility of the          S/075/60/015/005/006/026/XX
Phenyl Arsonates of Zirconium, Thorium,          B002/B056
and Uranium

10 references: 7 Soviet, 2 US, and 1 Austrian.

SUBMITTED:    November 30, 1959

$\underline{V}'$

Card 3/3

MIKHAYLOV, V.A.

Solubility of nonelectrolytes in mixed solvents. Izv.Sib.otd.
AN SSSR no.5:51-58 '61.                                  (MIRA 14:6)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR,
Novosibirsk.
                          (Solubility)

'18 3400    .1087

S/078/61/006/006/009/013
B:10/B206

AUTHORS:     Mikhaylov, V. A., Torgov, V. G., Melekhina, N. F.

TITLE:       Extraction of nitrates of the rare-earth elements by
             means of tributyl phosphate in the presence of Trilon B

PERIODICAL:  Zhurnal neorganicheskoy khimii, v. 6, no..6, 1961, 1457-1465

TEXT:   Complex-forming substances have often been used for the chromato-
graphic separation of rare-earth elements (REE). The effect of the complex-
forming substance in the aqueous phase on the separation of the REE in
the system: tributyl phosphate (TBP)-8 mole solution $NH_4NO_3$ - $Me(NO_3)_3$
- Trilon B has been studied. The following holds for the distribution
of an REE nitrate present in one phase, to two phases of equal volume:
$E = c_{org}/c_w$ (1), where E is the REE distribution coefficient in the
presence of Trilon B; $c_{org}$ the equilibrium concentration of the element
in the organic phase; $c_w$ the equilibrium concentration of the element in
the aqueous phase. In the aqueous phase, the following ions are in

Card 1/9

Extraction of nitrates of the rare-earth ...   S/078/61/006/006/009/013
B110/B206

equilibrium: $Me^{3+}$, $MeY^-$ and $Me(NO_3)_j^{3-j}$. Therefore, $E = c_{org}/\{[Me^{3+}](1$

$+ \sum_j \varkappa_j [NO_3^-]^j\} + [MeY^-]$ (6) holds, where $\varkappa_j$ are the full stability.
constants of the nitrate complexes of the type $Me(NO_3)_j^{3-j}$, n the quotient
from Trilon concentration in aqueous phase and initial REE concentration
$(n = c_{tr}/c_{in})$: $n = 1/(1 + E) + (B/c_{in})\cdot E$ (12), where E can be considered
an empirical constant. The following is written for the distribution
coefficient of two REE nitrates $Pr(NO_3)_3$ and $Nd(NO_3)_3$:

$$ S_{Pr, Nd} = \frac{\beta_{Pr}}{\beta_{Nd}} \frac{1}{S_0} \frac{K_{PrY-}}{K_{NdY-}} \frac{1 + \sum_1^j \varkappa_j^{Pr} [NO_3^-]^j}{1 + \sum_1^j \varkappa_j^{Nd} [NO_3^-]^j} \qquad (16) $$

where the degree of complex formation $\beta = [MeY^-]/c_w$ is the separation
effectiveness without Trilon, $S_0 = E_0^{Nd}/E_0^{Pr}$. The following holds for great

Card 2/9

24085

S/078/61/006/004/009/0??

Extraction of nitrates of the rare-earth ...    B??C/B?C6

concentration of the complex-forming substance, $S_{Pr/Nd} = (1/S_o)\cdot(K_{PrY}\cdot)/(K_{PrNd}\cdot)$ (18). The Trilon concentration and the pH of the aqueous phase does not show here. For $S_o > 1$, the complex-forming substance can increase or reduce the separation coefficient in dependence on the instability constants; for $S_o < 1$, it always increases it. The above equation can also serve for calculating the biggest possible separation coefficient in the presence of the complex-forming substance. The oxides of the cerium group used for producing the nitrates had more than 89% of oxide of the main element, those of the yttrium group were chemically pure. The standard concentrations were determined by the oxalate method. Moreover, 8 molar $NH_4NO_3$ solution, and TBP washed out with soda solution and water (in equilibrium with the 8-molar $NH_4NO_3$ solution) were used, and the titer of the Trilon B solution was determined. Because of the high $E_o$ values, the REE transition into the organic solvent took a quantitative course. The equilibrium concentration of the REE sum was determined by means of oxalate precipitation, the individual REE elements spectrochemically by

Card 3/9

23083

S/078/6·/006/006/009/0·3

Extraction of nitrates of the rare-earth ...   B··0/B206

means of the ИСП-67 (ISP-67) spectrograph. and, for La-Nd, by means of
the CФ-4 (SF-4) spectrophotometer. The pH values were determined by
means of a lamp potentiometer with quinhydrone electrode. Table 1 shows
the mean values from 4-9 parallel experiments without Trilon B. Inversion
of the extractibility was established for heavy REE as well as for low
HNO$_3$ concentration (H.McKay et al. J. Inorg. and Nucl. Chem. 9, 279

(1959))(Fig. 1). In conformity with the ionic radius, yttrium is placed
between dysprosium and holmium. A. K. Lavrukhina and Chu Pei-Chi
(Ref. 8: Radiokhimiya 1. 530. (1959)) have shown that the Ce (III) dis-
tribution coefficient does not depend on the Ce (III) concentration for
the TBP extraction from solutions with great ionic strength (·4 mole HNO$_3$)

in the concentration range concerned. Table 2 shows the results obtained
under the same conditions in the presence of Trilon B. The pH value
dropped from ··4.5 to ··2 through complex ion formation. β fluctuated
between 95 and 100%. Fig. 2 shows the curves of the distribution
coefficients calculated by means of the constant B obtained according to
Eq. (12). The increase of the pH leads to the reduction of the distribution
coefficient E through displacement of the equilibrium $Me^{3+}$ . $H_2Y^{2-} \rightleftharpoons MeY^- + 2H^·$

Card 4/9

Extraction of nitrates of the rare-earth ...    $S/078/61/006/006/009/013$
$B110/B206$

to the right. The comparison of S and $F_o$ in Table 8 shows that Trilon B does not facilitate the separation of the REE of the cerium group, but facilitates that of La-Nd considerably. The separation of the REE of the yttrium group is also facilitated. In the series Ho - Yb Trilon B raises the distribution coefficient by 2.5 to 3 times. S amounts thereby to $3 - 3.5$ for a few neighboring elements. The authors thank V.K. Val'tsev for his collaboration. There are 4 figures, 8 tables, and 9 references: 4 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: Ref. 3: D. Scargill et al.: J.Inorg. and Nucl. Chem., 4, 304 (1957). Ref. 6: C. V. Banks et al. Analyt. Chem., 30, 1792 (1958). Ref. 9: E. J. Wheelwright: J. Amer. Chem. Soc., 75, 4196 (1953).

ASSOCIATION:    Institut neorganicheskoy khimii-Sibirskoye otdeleniye
Akademii nauk SSSR (Institute of Inorganic Chemistry,
Siberian Branch AS USSR)

SUBMITTED:    May 9, 1960

Card 5/9

MIKHAYLOV, V.A.; GRIGOR'YEVA, E.F.

Basic zirconium carbonates. Zhur.neorg.khim. 6 no.6:1484-1487
Je '61.                                      (MIRA 14:11)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii
nauk SSSR.

(Zirconium carbonate)

MIKHAYLOV, V.A.

Study of thoron and its reaction with hexavalent uranium. Zhur. anal.khim. 16 no.2:141-149 Mr-Ap '61. (MIRA 14:5)

(Radon)
(Uranium)
(Hydrogen—Ion concentration)

MIKHAYLOV, V.A.

Relationship between coefficients in Margules equations for three-component systems. Zhur.prikl.khim. 34 no.10:2359-2361 O '61.
(MIRA 14:11)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
(Systems (Chemistry))

25343
S/C20/61/138/006/019/019
B103/B215

18 5100

AUTHORS:     Levin, I. S., and Mikhaylov, V. A.

TITLE:       Separation of indium from tin by extraction with alkyl-
             phosphoric acids

PERIODICAL:  Akademiya nauk SSSR. Doklady, v. 138, no. 6, 1961, 1392-1394

TEXT:  The authors studied the extraction of indium from tin by isoamyl-
phosphoric and isoamylpropyl-phosphoric acids. Simple and efficient
methods have, so far, not existed. A mixture of these acids was produced
by interaction between isoamyl alcohol and phosphoric acid anhydride
($P_2O_5$ : iso-AmOH = 1 : 2), and it was usually applied in the form of a
20% (by volume) solution of the extracting agent in benzene or toluene.
The extraction took 3 min at $20\pm3°C$ and a ratio between organic (O) and
aqueous (A) phase: O : A = 1 : 2. In some experiments, $In^{114}$ and
$Sn^{113, 123}$ radioisotopes were used. It was found that in chloride
solutions, indium and $Sn^{2+}$ in a wide range of acidity cannot be separated
by one single process. This, however, is well possible in sulfuric
Card 1/4

Separation of indium ...

solutions. Indium can even be extracted from 10 $N$ (and higher concentrated) $H_2SO_4$ with a high distribution coefficient, whereas $Sn^{2+}$ is left almost quantitatively in the aqueous phase. The partition coefficient thus reaches $10^6$. In is easily reextracted by washing with small amounts of 6-9 $N$ HCl, $Sn^{4+}$ being removed additionally. In an extraction cycle of 3-4 extraction stages, the indium concentration in the HCl re-extract may be increased by 60 - 80 times due to a counter flow of the initial solution (Ref.3: V. A. Mikhaylov, Izv. Sib. otd. AN SSSR, No 4.(1960)). With a high Sn content it is recommended to use a 100-150 g/l acid solution for the extraction since the solubility of Sn and In sulfates in concentrated $H_2SO_4$ solutions is low. The acidity of commercial solutions (after electrolytic removal of Sn) containing glue and β-naphthol has to be increased up to 400-450 g/l if good phase separation is wanted. Sn is then removed from the organic phase by washing with even stronger $H_2SO_4$ (700 - 900 g/l). Sometimes, preliminary dilution of the solution becomes

Card 2/4

25343
S/020/61/138/006/019/019
Separation of indium ...                               B103/B215

necessary.  The solutions to be extracted contained:  0.75 - 1.5 g/l of In,
5 - 10 g/l of $Sn^{2+}$, and 4 - 6 g/l of $Sn^{4+}$.  The above method allows a
quantitative separation of In from $Sn^{2+}$ within the range of Sn : In =
(30 - 10) : 1 to 5000 : 1 (indicator amounts of In).  Indium was thus
twice re-extracted by 9 N HCl at O : A = 2.5 : 1.  A metallic indium sponge
containing 10 - 25% of impurities (mainly $Sn^{4+}$) was thus obtained from
the re-extract by cementation onto zinc or by electrolysis.  $Sn^{4+}$ was most
easily separated from In by washing the organic phase with HF (1 : 1).

The ratio O : A = (30 - 40) : 1 was sufficient, since the distribution
coefficient of $Sn^{4+}$ from HF-containing solutions is very low ($< 0.01$).
Indium sponge can thus be produced with a purity of 98 - 99%.  After
extraction of indium, the extracting agent may again be added to the cycle.
It is recommended to use derivatives of higher alcohols (such as 2-ethyl
hexanol) to reduce the losses of extracting agent in the aqueous phase.
The above method can be applied to analytical and technological purposes.

Card 3/4

25343
S/020/61/138/006/019/019
B103/B215

Separation of indium ...

There are 1 figure, 1 table, and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The reference to English-language publication reads as follows: Ref.2: E. M. Scadden, N. E. Ballou, Anal. Chem., 25, 1602 (1953)).

ASSOCIATION: Khimiko-metallurgicheskiy institut Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Chemistry and Metallurgy of the Siberian Branch of the Academy of Sciences USSR) Institut neorganicheskoy khimii Sibirskogo otdeleniya Akademii nauk SSSR (Institute of Inorganic Chemistry of the Siberian Branch of the Academy of Sciences USSR)

PRESENTED: December 2, 1960 by I. V. Tananayev, Academician

SUBMITTED: December 1, 1960

Card 4/4

MIKHAYLOV, V.A., kand.tekhn.nauk

Using mounted rippers in strip mines abroad. Met.i gornorud. prom.
no.6:92-94  N-D '63.                                    (MIRA 18:1)

*MIKHAYLOV, V.A .*

/

S/186/62/004/003/007/022
E071/E433

AUTHORS:  Nikolayev, A.V., Torgov, V.G., Roman, V.K.,
Mikhaylov, V.A., Kotlyarevskiy, I.L.

TITLE:  The synthesis and investigation of compounds of
uranyl salts with pyridine oxide derivatives

PERIODICAL: Radiokhimiya, v.4, no.3, 1962, 296-304

TEXT:   The authors studied the interaction of pyridine oxide
derivatives (pyridine-N-oxide); $\gamma$-nitropyridine oxide; $\alpha$-picoline-N-oxide;
2,6-lutidine-N-oxide;  2,3,6-trimethylpyridine-N-oxide;
2,3,5,6-tetramethylpyridine-N-oxide and
2-methyl-6-phenylpyridine-N-oxide) with uranyl salts (nitrate,
sulphate and chloride).   The synthesis of compounds of uranyl
salts with pyridine oxides was done by mixing 10 to 15% alcoholic
solutions of a pyridine oxide with alcoholic solutions of uranyl
salts in a ratio of uranyl salt : pyridine oxide = 1:3  (in the
case of $\gamma$-nitropyridine oxide an aqueous solution was used).
Altogether 11 complex compounds of uranyl salts with pyridine
oxides were obtained and some of their properties investigated.
The composition of the compounds was:  $UO_2(NO_3)_2 \cdot 2PyOx$;
Card 1/3

S/186/62/004/003/007/022
E071/E433

The synthesis and ...

$UO_2(NO_3)_2 \cdot 3PyOx$ (synthesized in aqueous medium); $UO_2SO_4 \cdot 2PyOx$; $UO_2Cl_2 \cdot 2PyOx$.  Differential thermal analysis of the compounds indicated that the first effect is an endothermic one, it is not associated with any visual changes in the compounds (with the exception of $UO_2(NO_3)_2 \cdot 2C_6H_7NO$ which melts at 160°C and $UO_2SO_4 \cdot 2C_5H_5NO$ which changes colour at 200°C) and is assumed as being due to the splitting of one or two molecules of pyridine oxide which can be accompanied by melting.  The temperature of this effect can be taken as a measure of the strength of the complex.  A steady decrease of this temperature in the series: $UO_2(NO_3)_2 \cdot 2C_5H_5NO$ (220°C), $UO_2(NO_3)_2 \cdot 2C_6H_7NO$ (160°C), $UO_2(NO_3)_2 \cdot 2C_7H_9NO$ (120°C) indicate that the introduction of the methyl group in the α-position in respect of nitrogen leads to a decrease in the strength of the bond $UO_2^{2+} \ldots \bar{O} - \overset{+}{N}\!\!\diagup$

The compounds are well soluble in water and little soluble in organic solvents.  Complexes with α-picoline oxide are somewhat better soluble in organic solvents.  This is ascribed to lack of symmetry in the α-picoline molecule.  It is thought that this

Card 2/3

/

The synthesis and ...

. S/186/62/004/003/007/022
E071/E433

non-symmetrical hydrophobization of α-picoline molecule can be
enhanced by the introduction of one or two long alkyl chains and
thus produce complexes well soluble in organic solvents and
insoluble in water.   A decrease in the polarity of the
N ⟶ O bond through the introduction of electrophylic substituents,
e.g. halogens may have a similar effect.   In this way compounds
suitable as extracting agents could be obtained.   This problem
is being investigated.   There are 4 figures and 7 tables.

SUBMITTED:   April 11, 1961,

Card 3/3